

MCSE Guide to Microsoft® Windows® 2000 Professional



MCSE Guide to Microsoft® Windows® 2000 Professional

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BRIEF CONTENTS

PREFACE	xvii
CHAPTER ONE	
A First Look at Windows 2000 Professional	1
CHAPTER TWO	
Installing Windows 2000 Professional	35
CHAPTER THREE	
Using the MMC, Task Scheduler, and Control Panel.	73
CHAPTER FOUR	
Managing Windows 2000 File Systems and Storage.	113
CHAPTER FIVE	
Users, Groups, Profiles, and Policies	165
CHAPTER SIX	
Windows 2000 Security and Access Controls.	203
CHAPTER SEVEN	
Network Protocols.	235
CHAPTER EIGHT	
Internetworking with Novell NetWare.	277
CHAPTER NINE	
Remote Access Service.	299
CHAPTER TEN	
Printing	343
CHAPTER ELEVEN	
Performance Tuning.	381
CHAPTER TWELVE	
Windows 2000 Application Support	415

CHAPTER THIRTEEN	
Working with the Windows 2000 Registry	447
CHAPTER FOURTEEN	
Booting Windows 2000	477
CHAPTER FIFTEEN	
Windows 2000 Professional Disaster Recovery and Protection	503
CHAPTER SIXTEEN	
Troubleshooting Windows 2000	527
APPENDIX A	
Exam Objectives Tracking for Exam # 70-210: Installing, Configuring, and Administering Microsoft Windows 2000 Professional	561
APPENDIX B	
Active Directory Overview	567
GLOSSARY	577
INDEX	595



TABLE OF CONTENTS

PREFACE

xvii

CHAPTER ONE

A First Look at Windows 2000 Professional

	1
The Microsoft Networking Family	2
Windows 2000 Family	2
Windows 98	3
Earlier Windows Operating Systems	3
The Windows 2000 Environment	4
Portability	4
Multitasking	4
Multithreading	5
File Systems	5
Active Directory	6
Security	6
Multiple Clients	7
Multiple Processors	7
Compatibility	7
Storage	8
Connectivity	8
Windows 2000 Professional Hardware Requirements	9
Hardware Compatibility List (HCL)	9
Finding the HCL	10
Why the HCL Is So Important	10
Preparing a Computer to Meet Upgrade Requirements	11
Features of Windows 2000 Professional	11
Ease of Use	11
Storage Improvements	13
Internet Access	13
Security	14
Networking Models	14
Workgroup Model	14
Domain Model	15
Windows 2000 Architecture	16
User Mode	17
Kernel Mode	18
Memory Architecture	21
Chapter Summary	21
Key Terms	22
Review Questions	25
Hands-on Projects	28
Case Projects	33

CHAPTER TWO**Installing Windows 2000 Professional**

	35
Upgrading Versus Installing	36
Booting Multiple Operating Systems	37
Planning the Installation	39
Types of Installations	40
Partitioning the Hard Disk	41
Unattended Installations	41
Creating the UDF	43
Using the Sysdiff Utility	44
Alternate Automation Options	46
Beginning the Windows 2000 Professional Installation	47
CD-ROM Installation Launched from Setup Boot Floppies	47
Bootable CD-ROM	47
CD-ROM Launch from Existing OS	48
Network Installation	48
Setup Options	48
Winnt and Winnt32 Advanced Setup Options	49
Advanced Setup Options	52
Windows 2000 Professional Setup: Step by Step	53
Text-only Portion of Setup	53
GUI Portion of Setup	55
Removing Windows 2000 Professional	56
Destroying Partitions	57
Removing Windows 2000 from FAT	57
Chapter Summary	58
Key Terms	59
Review Questions	60
Hands-on Projects	63
Case Projects	72

CHAPTER THREE**Using the MMC, Task Scheduler, and Control Panel**

	73
Microsoft Management Console Overview	74
The Console	74
Snap-Ins and Extensions	76
Using the MMC	76
The Windows 2000 Task Scheduler	79
Control Panel Overview	81
Accessibility Options	81
Add/Remove Hardware	82
Add/Remove Programs	84
Administrative Tools	85
Date/Time	85
Display	85
Fax	86
Folder Options	87
Fonts	87
Game Controllers	87
Internet Options	87
Keyboard and Mouse	88
Network and Dial-up Connections	88
Phone and Modem Options	88

Power Options	89
Printers	89
Regional Options	90
Scanners and Cameras	91
Scheduled Tasks	91
Sounds and Multimedia	91
System	91
Users and Passwords	94
Installing Hardware	94
Removable Media	97
Hardware Profiles	98
PCMCIA or PC Cards	99
Video Adapters	100
Chapter Summary	101
Key Terms	101
Review Questions	103
Hands-on Projects	106
Case Projects	112
 CHAPTER FOUR	
Managing Windows 2000 File Systems and Storage	113
File Storage Basics	114
Basic Storage	114
Dynamic Storage	116
Removable Storage Devices	119
Drive Configurations	119
File Systems	119
FAT and FAT32	120
NTFS	121
POSIX Support via NTFS	122
Converting Between File Systems	123
Disk Management Actions	124
Assigning Drive Letters and Mount Points	129
Freeing Disk Space	129
Using ScanDisk	130
Defragmenting Hard Drives	131
File System Object-Level Controls	132
NTFS Folder Object	132
FAT/FAT32 Folder Object	134
NTFS File Object	135
FAT/FAT32 File Object	136
NTFS Mounted Volume Object	137
FAT/FAT32 Mounted Volume Object	138
Managing NTFS Permissions	139
NTFS File and Folder Permissions	139
NTFS Permission Rules	144
Copying and Moving NTFS Objects	144
Managing Shared Folders	145
Troubleshooting Permissions Problems	148
The Microsoft Distributed File System	149

Chapter Summary	149
Key Terms	150
Review Questions	152
Hands-on Projects	155
Case Projects	163

CHAPTER FIVE**Users, Groups, Profiles, and Policies**

	165
Windows 2000 Professional User Accounts	166
Logging on to Windows 2000 Professional	167
Default User Accounts	168
Administrator	168
Guest	169
Naming Conventions	169
Managing User Accounts	170
Users and Passwords Applet	170
Local Users and Groups MMC Snap-in	173
System Groups	180
User Profiles	181
Local Profiles	183
Roaming Profiles	183
Local Security Policy	184
Password Policy	185
Account Lockout Policy	186
Audit Policy	187
User Rights Policy	188
Security Options	190
Chapter Summary	192
Key Terms	192
Review Questions	194
Hands-on Projects	198
Case Projects	202

CHAPTER SIX**Windows 2000 Security and Access Controls**

	203
The Windows 2000 Security Model	204
Logon Authentication	205
Objects	206
Access Control	207
Customizing the Logon Process	207
Disabling the Default Username	208
Adding a Security Warning Message	208
Changing the Shell	209
Disabling the Shutdown button	209
Automating Logons	210
Automatic Account Lockout	211
Domain Security Concepts and Systems	211
Domain Security Overview	211
Kerberos and Authentication Services	211
Local Computer Policy	213
Computer Configuration	214
User Configuration	216

Auditing	218
Encrypting File System (EFS)	221
Chapter Summary	223
Key Terms	223
Review Questions	225
Hands-on Projects	229
Case Projects	234
 CHAPTER SEVEN	
Network Protocols	235
Windows 2000 Network Components	236
Network Protocols	236
NetBEUI	237
NWLink	238
TCP/IP	239
Data Link Control	243
Interprocess Communication (IPC)	243
IPC File System Mechanisms	244
IPC Programming Interfaces	245
Redirectors	247
Workstation Service	247
Server Service	248
Multiple Universal Naming Convention Provider (MUP)	248
Universal Naming Convention Names	249
Multi-Provider Router (MPR)	249
Networking Under Windows 2000	249
Managing Bindings	254
TCP/IP Architecture	255
Internet Protocol	255
Transmission Control Protocol	258
TCP/IP Configuration	262
Chapter Summary	266
Key Terms	266
Review Questions	270
Hands-on Projects	273
Case Projects	276
 CHAPTER EIGHT	
Internetworking with Novell NetWare	277
NetWare Networks	278
Windows 2000 Professional and NetWare	278
NetWare Compatibility Components	279
NWLink	279
Client Service for NetWare	284
Bindery and NDS Support	285
Installing and Configuring Client Service for NetWare	287
Connecting to NetWare Resources	290
NetWare-Aware Applications	291
NetWare Client for Windows	291

Chapter Summary	291
Key Terms	293
Review Questions	294
Hands-on Projects	295
Case Projects	297
 CHAPTER NINE	
Remote Access Service	299
Remote Access Service (RAS)	300
Features of RAS in Windows 2000	301
WAN Connectivity	303
Internet Network Access Protocols	303
Point-to-Point Protocol (PPP)	303
Point-to-Point Tunneling Protocol (PPTP)	304
Multilink PPP	305
Microsoft RAS Protocol (Asynchronous NetBEUI)	305
NetBIOS Gateway	305
Serial Line Internet Protocol (SLIP)	305
Telephony Features of RAS	306
Configuration of RAS	306
Dial-up to Private Network	308
Dial-up to the Internet	317
Connect to a Private Network Through the Internet	318
Accept Incoming Connections	319
Connect Directly to Another Computer	320
Installing RAS Hardware	321
Phone and Modem Options	321
Windows 2000 and the Internet	323
Internet Explorer	323
Outlook Express	324
FTP Client	324
Telnet Client	324
Peer Web Services	325
Using Offline Files	326
Remote Access Troubleshooting	328
Chapter Summary	329
Key Terms	329
Review Questions	330
Hands-on Projects	334
Case Projects	342
 CHAPTER TEN	
Printing	343
Windows 2000 Printing Terminology	344
Windows 2000 Print Subsystem Architecture	346
Graphical Device Interface (GDI)	346
Printer Driver	347
Print Spooler	347
Printer Driver Software	351
Printing Across the Network	351

The Printing Process	352
Installing and Managing Printers	352
Managing Print Jobs	353
Creating a Local Printer	355
Connecting to a Remote Printer	355
Configuring a Printer	355
General Tab	356
Sharing Tab	356
Ports Tab	357
Advanced Tab	358
Security Tab	360
Device Settings Tab	362
Printers and the Web	364
Managing the Print Server	364
Troubleshooting Printing Problems	365
Troubleshooting Printing in General	366
Troubleshooting Network Printing	366
Stopping and Restarting the Print Spooler	367
Fax Support	367
Chapter Summary	368
Key Terms	369
Review Questions	372
Hands-on Projects	375
Case Projects	379
 CHAPTER ELEVEN	
Performance Tuning	381
Establishing a Baseline	382
Monitoring and Performance Tuning	382
Task Manager	383
System Monitor	385
Event Viewer	396
Performance Options	398
Setting Application Priority	398
Recognizing and Handling Bottlenecks	399
Common Bottlenecks	401
Network Bottlenecks	403
Eight Ways to Improve Windows 2000 Performance	403
Chapter Summary	405
Key Terms	406
Review Questions	407
Hands-on Projects	409
Case Projects	413
 CHAPTER TWELVE	
Windows 2000 Application Support	415
Windows 2000 System Architecture	416
Kernel Mode Versus User Mode	417
Processes and Threads	418
Environment Subsystems	419

Win32 Applications	422
The Environment Subsystem	422
Multithreading	422
Memory Space	423
Input Message Queues	423
Base Priorities	424
DOS and the Virtual DOS Machine	424
VDM Components	426
Virtual Device Drivers	426
AUTOEXEC.BAT and CONFIG.SYS	426
Custom DOS Environments	428
Win16 Concepts and Applications	432
Win16-on-Win32 (WOW) Components	433
Memory Space	434
The OS/2 Subsystem	436
OS/2 Version 1.x	436
OS/2 Components	436
Bound Applications	436
OS/2 Configuration	437
POSIX Subsystem	437
Chapter Summary	438
Key Terms	438
Review Questions	440
Hands-on Projects	443
Case Projects	446

CHAPTER THIRTEEN

Working with the Windows

447

Windows Registry Overview	448
Important Registry Structures and Keys	451
HKEY_LOCAL_MACHINE	451
HKEY_CLASSES_ROOT	454
HKEY_CURRENT_CONFIG	455
HKEY_CURRENT_USER	455
HKEY_USERS	456
The Registry Editors: Regedit and Regedt32	457
Registry Size Limitations	459
Registry Storage Files	460
Registry Fault Tolerance	461
Backing Up the Registry	463
Restoring the Registry	464
Windows 2000 Resource Kit Registry Tools	465
Chapter Summary	466
Key Terms	467
Review Questions	469
Hands-on Projects	472
Case Projects	475

CHAPTER FOURTEEN	
Booting Windows 2000	477
The Boot Process	478
Windows 2000 Boot Phase	478
Power-On SelfTest (POST)	478
Initial Startup	479
Boot Loader	482
Detecting Hardware	484
Troubleshooting and Advanced Startup Options	484
Boot Configuration and Selecting an Operating System	486
[boot loader]	486
[operating systems]	487
Advanced RISC Computing (ARC) Pathnames	488
Editing Boot.ini	488
Using the Control Panel	488
Using a Text Editor	490
Windows 2000 Load Phase	490
Loading the Kernel	491
Initializing the Kernel	492
Services Load	492
Windows 2000 System Startup	493
Logging On	493
Multiple-Boot Systems	493
Multiple Windows Operating Systems	494
Multiple Installation Order	494
Chapter Summary	494
Key Terms	495
Review Questions	496
Hands-on Projects	499
Case Projects	502
CHAPTER FIFTEEN	
Windows 2000 Professional Disaster Recovery and Protection	503
Microsoft IntelliMirror	504
Data Backup	504
PC Configuration Recovery	505
Application Installation and Repair	505
Microsoft Backup Utility	506
Repairing Windows 2000 Professional	510
Recovery Console	510
Emergency Repair Process	512
Remote OS Installation	512
Chapter Summary	514
Key Terms	514
Review Questions	515
Hands-on Projects	518
Case Projects	526
CHAPTER SIXTEEN	
Troubleshooting Windows 2000	527
General Principles of Troubleshooting	528
Collecting Information	528
Common-Sense Troubleshooting Guidelines	530

Troubleshooting Tools	531
Event Viewer	531
Computer Management Tool	533
Troubleshooting Installation Problems	535
Troubleshooting Printer Problems	537
Troubleshooting RAS Problems	540
Troubleshooting Network Problems	543
Troubleshooting Disk Problems	544
Miscellaneous Troubleshooting Issues	545
Permission Problems	545
Master Boot Record Problems	546
Using the Dr. Watson Debugger	546
Applying Service Packs and Hot Fixes	547
Using Microsoft References for Troubleshooting	549
Chapter Summary	550
Key Terms	550
Review Questions	551
Hands-on Projects	554
Case Projects	560

APPENDIX A**Exam Objectives Tracking for Exam # 70-210: Installing, Configuring, and Administering Microsoft Windows 2000 Professional****361**

Installing Windows 2000 Professional	562
Implementing and Conducting Administration of Resources	562
Implementing, Managing, and Troubleshooting Hardware Devices and Drivers	563
Monitoring and Optimizing System Performance and Reliability	564
Configuring and Troubleshooting the Desktop Environment	565
Implementing, Managing, and Troubleshooting Network Protocols and Services	566
Implementing, Monitoring, and Troubleshooting Security	566

APPENDIX B**Active Directory Overview****567**

What Is Active Directory?	568
Active Directory and the X.500 Standard	568
Active Directory Management	568
Active Directory Replication	570
Server Affinity	570
Publishing Objects	571
Accessing Active Directory	572
How Does a Workstation Find a Directory Server?	572
How Do Users Log On?	573
Active Directory and Windows 2000 Professional	573
Accessing Files and Folders When Offline	573
Synchronization Manager	574
Key Terms	574

GLOSSARY**577****INDEX****595**

Preface

Welcome to the *MCSE Guide to Windows 2000 Professional!* This book offers you real-world examples, interactive activities, and hundreds of hands-on projects that reinforce key concepts and help you prepare for the Microsoft certification exam #70-210: *Installing, Configuring, and Administering Microsoft Windows 2000 Professional*. This book also features troubleshooting tips for solutions to common problems that you will encounter in the realm of Windows 2000 Professional administration.

This book offers in-depth study of all the salient functions and features of installing, configuring, and maintaining Windows 2000 Professional as a client operating system. Throughout the book, we provide pointed review questions to reinforce the concepts introduced in each chapter and to help prepare you for the Microsoft certification exam. In addition to the review questions, we provide detailed hands-on projects that let you experience firsthand the processes involved in Windows 2000 Professional configuration and management. Finally, to put a real-world slant on the concepts introduced in each chapter, we provide case studies to prepare you for situations that must be managed in a live networking environment.

THE INTENDED AUDIENCE

This book is intended to serve the needs of those individuals and information systems professionals who are interested in learning more about Microsoft Windows 2000 Professional, as well as individuals who are interested in obtaining Microsoft certification on this topic. These materials have been specifically designed to help individuals prepare for this certification exam.

Chapter 1, “A First Look at Windows 2000 Professional,” introduces the Windows 2000 networking family and describes the major features of the Windows 2000 environment. In addition, it explores the architecture of Windows 2000. Finally, it defines the minimal system requirements for Windows 2000 Professional and introduces the two major networking models under which Windows 2000 can be used.

In **Chapter 2**, “Installing Windows 2000 Professional,” we discuss how to decide whether to perform an upgrade or a fresh installation of Windows 2000 Professional. We also explore how to boot using multiple operating systems. In addition, we examine installation options such as unattended installations; whether to install using Windows 2000 setup disks, CD-ROM, or across the network; and, finally, we describe the various Setup and advanced installation options.

Chapter 3, “Using the MMC, Task Scheduler, and Control Panel,” examines the tools used to manage Windows 2000 Professional, namely, the Microsoft Management Console (MMC), Task Scheduler, and Control Panel applets. These tools are used to install and configure new hardware, create hardware profiles for changing system configurations, as well as configure PC cards and multiple displays.

In **Chapter 4**, “Managing Windows 2000 File Systems and Storage,” we explore the differences between basic and dynamic storage and discuss the drive configurations supported by Windows 2000. This chapter also introduces file systems supported by Windows 2000 Professional: FAT, FAT32, and NTFS. Additionally, we describe permissions, sharing, and other security issues related to file systems. From an administrative standpoint, we also discuss drive, volume, and partition maintenance and administration under Windows 2000.

We introduce you to the concepts of users, groups, profiles, and policies in **Chapter 5**, “Users, Groups, Profiles, and Policies.” This discussion includes setting up, naming, and managing local users and groups and default user and group accounts. From there, we examine the Windows 2000 Professional logon authentication process. This chapter concludes with in-depth coverage of the creation and management of user accounts, profiles, and local security policies.

Chapter 6, “Windows 2000 Security and Access Controls,” teaches you about the Windows 2000 security model and the key role of logon authentication. We show you how to customize the logon process, discuss domain security concepts, and provide additional instructions for setting up the local computer policy. This chapter also shows you how to enable and use auditing. We conclude this discussion on security with details on encrypting NTFS files, folders, or drives using the encrypting file system (EFS).

We enter the world of networking in **Chapter 7**, “Network Protocols.” Here, you’ll explore the protocols supported by Windows 2000. In addition, we detail the intricacies of configuring and managing TCP/IP.

Chapter 8, “Internetworking with Novell NetWare,” explores the features included with Windows 2000 Professional to interact with Novell networks. This chapter discusses connecting Windows 2000 Professional computers to NetWare servers. In addition, we examine the steps necessary to install and configure NWLink and the Client Service for NetWare (CSNW).

We examine remote access to Windows 2000 Professional in **Chapter 9**, “Remote Access Service.” You’ll learn how to use remote access under Windows 2000, configure various RAS connection types, and troubleshoot RAS connection problems.

In **Chapter 10**, “Printing,” we discuss Windows 2000 print terminology and architecture, and examine the special features of the Windows 2000 print system. We provide hands-on instruction for creating and managing printers and printer permissions. This chapter concludes with a discussion on troubleshooting printing problems.

Chapter 11, “Performance Tuning,” gives you the information you need to understand the performance and monitoring tools of Windows 2000. You’ll learn how to create a Counter log for historical analysis, configure Alert events to warn of performance problems, and establish a baseline of normal system operation against which to measure Windows 2000 Professional performance. Finally, we discuss how to detect and eliminate bottlenecks to keep your system running as efficiently as possible.

In **Chapter 12**, “Windows 2000 Application Support,” we discuss how to deploy DOS, Win16, OS/2, and POSIX applications. Finally, we explore how to fine-tune the application environment for DOS and Win16.

Chapter 13, “Working with the Windows 2000 Registry,” discusses the function and structure of the Registry, which is the underlying database that stores system configuration information in Windows 2000. This chapter describes the purpose of each of the five Registry keys, how to use the Registry editing tools, defines the fault-tolerant mechanisms for the Registry, and provides information on how to back up and restore the Registry.

In **Chapter 14**, “Booting Windows 2000,” we explain the steps taken by Windows 2000 Professional during the boot process. This discussion includes the operation of the key Windows 2000 startup files, the boot options offered via the Advanced Options Menu, and how to troubleshoot system restoration by using Safe Mode. In addition, we explore how to edit the Boot.ini file to manipulate the boot process, and how multiboot configurations are created and function.

We introduce you to disaster protection and recovery concepts in **Chapter 15**, “Windows 2000 Professional Disaster Protection and Recovery.” Here, you’ll learn how to back up data and settings on Windows 2000 Professional and recover a Windows 2000 Professional client’s applications and data. Additionally, we introduce IntelliMirror technology and describe its key features, as well as remote operating system installation, and how it can be used with IntelliMirror to recover a PC remotely. Finally, we show you how to create and use an Emergency Repair Disk, the Recovery Console, and the Safe Mode options for starting Windows 2000 Professional.

This book concludes with **Chapter 16**, “Troubleshooting Windows 2000 Professional.” Here, we examine how to collect documentation about your systems to aid in troubleshooting and preventing problems, and review common sense approaches to troubleshooting. In addition, we discuss how to troubleshoot general problems with Windows 2000 and use some of the troubleshooting tools of Windows 2000 Professional.

FEATURES

Many features in this book are designed to improve its pedagogical value and aid you in fully understanding Windows 2000 Professional concepts.

- ◆ **Chapter Objectives.** Each chapter begins with a detailed list of the concepts to be mastered within that chapter. This list provides you with a quick reference to the contents of the chapter as well as a useful study guide.
- ◆ **Illustrations and Tables.** Numerous illustrations of screens and components help you visualize common setups, theories, and architectures. In addition, tables provide details and comparisons of both practical and theoretical information.
- ◆ **Chapter Summaries.** The text of each chapter concludes with a summary of the concepts it has introduced. These summaries provide a helpful way to recap and revisit the ideas covered in each chapter.
- ◆ **Key Terms.** Following the Chapter Summary, a list of key Windows 2000 terms and their definitions encourages proper understanding of the chapter's key concepts and provides a useful reference.
- ◆ **Review Questions.** End-of-chapter assessments begin with a set of review questions that reinforce the ideas introduced in each chapter. These questions not only show you whether you have mastered the concepts, but also are written to help prepare you for the Microsoft certification examination.
- ◆ **Hands-on Projects.** Although it is important to understand the theory behind technology, nothing can improve upon real-world experience. Each chapter provides a series of exercises aimed at giving students hands-on implementation experience.
- ◆ **Case Projects.** Finally, each chapter closes with a section that proposes certain situations. You are asked to evaluate the situations and decide upon the course of action to be taken to remedy the problems described. This valuable tool will help you sharpen your decision-making and troubleshooting skills, which are important aspects of network administration.

TEXT AND GRAPHIC CONVENTIONS

Wherever appropriate, additional information has been added to this book to help you better understand what is being discussed in the chapter. Icons throughout the text alert you to additional materials. The icons used in this book are described here:



Tips give extra information on how to attack a problem, time-saving shortcuts, or what to do in certain real-world situations.



Important information about potential mistakes or hazards is highlighted with a Caution icon.



Each step-by-step Hands-on Project is marked by the Hands-on Project icon.



Case Project icons mark scenario-based assignments in which you are asked to implement independently the information you have learned.

INSTRUCTOR'S MATERIALS

The following supplemental materials are available when this book is used in a classroom setting. All of the supplements available with this book are provided to the instructor on a single CD-ROM.

Electronic Instructor's Manual. The Instructor's Manual that accompanies this textbook includes:

- ◆ Additional instructional material to assist in class preparation, including suggestions for lecture topics, suggested lab activities, tips on setting up a lab for the hands-on assignments, and alternative lab setup ideas in situations where lab resources are limited.
- ◆ Solutions to all end-of-chapter materials, including the Review Questions, Hands-on Projects, and Case Projects.

Course Test Manager 1.3. Accompanying this book is a powerful assessment tool known as the Course Test Manager. Designed by Course Technology, this cutting-edge Windows-based testing software helps instructors design and administer tests and pre-tests. In addition to being able to generate tests that can be printed and administered, this full-featured program also has an online testing component that allows students to take tests at the computer and have their exams automatically graded.

PowerPoint presentations. This book comes with Microsoft PowerPoint slides for each chapter. These are included as a teaching aid for classroom presentation, to make available to students on the network for chapter review, or to be printed for classroom distribution. Instructors, please feel at liberty to add your own slides for additional topics you introduce to the class.

STUDENT'S MATERIALS

Student case assignment files. The instructor's CD-ROM comes with student case assignment files for each chapter. These files contain the end-of-chapter Case assignments in electronic format so that students can enter their answers and submit them through e-mail, to a shared network folder, or print them for submission to the instructor.

Electronic glossary. An electronic glossary with hyperlinks is provided on the instructor's CD-ROM for distribution to each student, such as through a Web page or a shared network folder.

WHERE SHOULD YOU START?

This book is intended to be read in sequence, from beginning to end. Each chapter builds upon those that precede it, to provide a solid understanding of Windows 2000 Professional. After completing the chapters, you may find it useful to go back through the book and use the review questions and projects to prepare for the Microsoft certification test for Windows 2000 Professional. Readers are also encouraged to investigate the many pointers to online and printed sources of additional information that are cited throughout this book.

ACKNOWLEDGMENTS

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Michael Stewart: Thanks to my boss and co-author, Ed Tittel, for including me in this book series. To my parents, Dave and Sue, thanks for your love and consistent support. To Mark, it seems that the stars are stacked against us, our plans to hang always seem to get foiled! To HERbert, why is it that only an hour after I clip your nails they are sharp as needles again!?!? And finally, as always, to Elvis—I recently was blessed with a sighting of your holy visage, wait a sec, that was just Earlvis, darn.

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MICROSOFT WINDOWS 2000 PROFESSIONAL HARDWARE REQUIREMENTS

Following are the Microsoft defined minimum requirements to install and run Windows 2000 Professional:

- ◆ 166-MHz Pentium or higher microprocessor (P5 or equivalent compatible clone) or a Compaq Alpha processor with the latest firmware version installed (except for DECpc 150 AXP, DEC 2000-500, Multia, and AXPPci 33 processors)
- ◆ 32 MB of RAM for Intel (64 MB or more recommended; 4 GB maximum) or 48 MB of RAM for Alpha (96 MB or more recommended; 8 GB maximum)
- ◆ 2 GB hard disk with a minimum of 650 MB of free space
- ◆ VGA or higher resolution monitor
- ◆ Keyboard
- ◆ Microsoft Mouse or compatible pointing device
- ◆ A CD-ROM drive (12X or faster recommended)
- ◆ A high-density 3.5-inch disk drive
- ◆ A Windows 2000 compatible network adapter card and related cable

